CLAIMS

1. A spectrally selective optical switch, comprising

a first and a second optical waveguide each having a light guiding structure arranged to guide light along a predetermined path, the optical waveguides being arranged adjacent and parallel to each other;

an external resonator defined by a first and a second mirror, said first and said second mirror being provided on opposite sides and outside of said first and second light guiding structures, and said external resonator being resonant to a specific wavelength; and

a deflector provided in each of said first and second optical waveguide, the deflectors being arranged to deflect light propagating in one of the light guiding structures to the other light guiding structure by operation of said external resonator.

2. The optical switch according to claim 1, wherein the deflector in at least one of the waveguides comprises

a first tilted reflector arranged in said waveguide, and

a second tilted reflector arranged in said waveguide,

wherein said first and said second tilted reflectors are superimposed upon each other, and arranged to deflect light out from said waveguide into two individual beams.

3. The optical switch according to claim 1, wherein each tilted reflector comprises a blazed Bragg grating.

4. The optical switch according to any one of the preceding claims, wherein either one of the first and the second mirror is a dielectric multi-layer mirror.

5. The optical switch according to any one of the preceding claims, wherein the wavelength to which the external resonator is resonant is adjustable, the spectrally selective optical switch thereby being tunable.

6. The optical switch according to any one of the preceding claims, wherein the optical waveguide is an optical fiber and the light guiding structure is a core in said optical fiber.

7. The optical switch according to any one of the preceding claims, wherein the first and second waveguides are implemented in the form of a dual-core fiber.

8. A matrix switch device, which uses N input fibers to N output fibers, where the input fibers are crossed with respect to the output fibers and where the N input fibers are linked to the N output fibers in N*N nodes, wherein said linking is at least partly accomplished with an optical switch according to any one of claims 1-7.

9. An arrangement comprising two optical switches as defined in claim 1,

wherein the first optical waveguides of the switches are connected to each other by means of a first interconnecting waveguide and the second optical waveguides of the switched are connected to each other by means of a second interconnecting waveguide,

and wherein each of said switches is arranged to cou-

ple 50 percent of available light power from the first optical waveguide to the second optical waveguide,

the arrangement further comprising means for altering the optical path length of at least one of the first and the second interconnecting waveguides such that constructive or destructive interference can be obtained in the second optical waveguide of the second switch by altering said optical path length.